Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

4C

U. S. F. S. RECEIVED

ASTRAGALUS TETRAPTERUS, A NEW POISONOUS PLANT OF UTAH AND NEVADA

BY

C. DWIGHT MARSH and A. B. CLAWSON
Pathological Division

UNITED STATES DEPARTMENT OF AGRICULTURE
DEPARTMENT CIRCULAR 81

Contribution from the Bureau of Animal Industry
JOHN R. MOHLER, Chief

Washington, D. C. January, 1920

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1920.

ASTRAGALUS TETRAPTERUS, A NEW POISONOUS PLANT OF UTAH AND NEVADA.

RESULTS OF PRELIMINARY INVESTIGATIONS.

Late in the summer of 1916 the supervisor of the Dixie National Forest asked for an investigation of losses of cattle on a range near Newcastle, Utah. In a somewhat limited region, six or eight cattle had died in 1915 and a number were sick in 1916. The principal symptoms as described by local men were weakness, "breaking down behind," with a weaving motion in walking, the hind feet striking the legs so as to wear the hair off in patches.

In company with the supervisor and some of the local stockmen, the senior author made a careful examination of the range. One sick steer, said to be a typical case, and showing the reported symptoms, was found. The animal was very weak, with a rough coat, staggered as it walked, and exhibited peculiar weaving movements of the hind legs. As the owner did not wish to have it killed, no autopsy was made.

The range where the cattle had been grazing was in the foothills, with nothing unusual in the vegetation except the presence of a plant of the pea family—an Astragalus—which at that time was new to the investigators. This Astragalus, which was noticeable on account of its peculiar pods, had been largely grazed, and at that time (September) consisted mostly of dried stems. In the stomach contents of a steer that had died the previous year a large number of pods of the Astragalus were found. These facts led to the suspicion that possibly this plant was the cause of the trouble, as many of the leguminous plants are poisonous. But it was then too late to gather any of the plant for experimental work, and arrangements were made to obtain material for feeding in the succeeding summer (1917). The plants were not sent, however, but in 1918 and 1919 a considerable quantity was obtained and preliminary experiments made.

These experiments showed conclusively that the plant is poisonous to cattle and sheep. Further extended experiments are necessary, but meantime it is thought important to report the result of the preliminary work that stockmen may be warned of the danger from the plant.

DESCRIPTION OF THE PLANT.

Astragalus tetrapterus is a perennial leguminous plant belonging to the same family as the locoes, alfalfa, etc. It is from 1 to 2 feet in height, with linear leaves, small, rather inconspicuous flowers of a light-purple color, and curved, four-winged pods. Figure 1 shows the plant in bloom, while figure 2 shows it in pod. The

FIG. 1.—*Astragalus tetrapterus,* showing the plant in flower.

plant is readily recognized by the peculiar pods, which are unique in their form. Even early in the season, before the pods are formed, the pods of the preceding year ordinarily can be found around the old plants.

The plant grows in the foothills, and so far as known now is confined to southern Utah and western Nevada, although it is possible

that further observation will show a wider range. It grows in scattering patches, never in such large quantities as is the case with some of the recognized loco plants. It is found in bloom early in June and generally dries up later in the summer.

FIG. 2.—*Astragalus tetrapterus,* showing the form of the pods.

EFFECT OF THE PLANT.

The symptoms as seen in the range have already been described. There has not been experimental work enough to make a very complete picture of the condition produced by corral feeding. Apparently the symptoms are not especially characteristic. There is staggering, the weakness being more pronounced in the hind legs. In the case of a steer there were mild spasms, with violent expira-

tions. In a sheep, which was killed by the plant, in addition to depression and weakness, there were salivation and nausea. The range cases are probably due to the continued eating of rather small quantities, which would lead to the chronic condition described before.

PRACTICAL CONSIDERATIONS.

At this stage of the investigation no advice can be given as to the treatment of poisoned animals. Stockmen should recognize the fact, however, that the plant is dangerous to cattle and sheep, and probably also to horses, and that when other forage is lacking the eating of the plant in large quantities may cause serious losses. If a heavily grazed range, where the plant is abundant, is used, it is reasonable to expect some losses. If animals become affected they should be removed to a location where they can get an abundance of feed; probably an alfalfa field would make an ideal pasture.

POISONOUS PLANTS

Are discussed in the following publications of the United States Department of Agriculture:

PUBLICATIONS AVAILABLE FOR FREE DISTRIBUTION BY THE DEPARTMENT.

Zygadenus, or Death Camas. (Department Bulletin 125.)
Lupines as Poisonous Plants. (Department Bulletin 405.)
Oak-Leaf Poisoning of Domestic Animals. (Department Bulletin 767.)
Eradication of Ferns from Pasture Lands in Eastern United States. (Farmers' Bulletin 687.)
Prevention of Losses of Live Stock from Plant Poisoning. (Farmers' Bulletin 720.)
Eradicating Tall Larkspur on Cattle Ranges in the National Forests. (Farmers' Bulletin 826.)
Larkspur, or "Poison Weed." (Farmers' Bulletin 988.)
The Loco-Weed Disease. (Farmers' Bulletin 1054.)
The Cause of the "Spewing Sickness" of Sheep. (Leaflet A. 9.)
Cicuta (Water Hemlock) as a Poisonous Plant. (Leaflet A. 15.)
White Snakeroot or Richweed (*Eupatorium urtcæfolium*) as a Stock-Poisoning Plant. (Leaflet A. I. 26.)
Eupatorium urticæfolium as a Poisonous Plant. (Reprint from the Journal of Agricultural Research, A–33.)
Notes on Larkspur Eradication on Stock Ranges. (A. I. 34.)

PUBLICATIONS FOR SALE BY THE SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C.

Cicuta, or Water Hemlock. (Department Bulletin 69.) Price, 10 cents.
Larkspur Poisoning of Live Stock. (Department Bulletin 365.) Price, 25 cents.
Stock-Poisoning Plants of the Range. (Department Bulletin 575.) Price, 50 cents.
Stagger Grass (Chrosperma muscætoxicum) as a Poisonous Plant. (Department Bulletin 710.) Price, 5 cents.
The Poisonous Action of Johnson Grass. (Bureau of Plant Industry Bulletin 90, Pt. IV.) Price, 5 cents.
Mountain Laurel, a Poisonous Plant. (Bureau of Plant Industry Bulletin 121, Pt. II.) Price, 5 cents.
The Relation of Barium to the Loco-Weed Disease. (Bureau of Plant Industry Bulletin 246.) Price, 10 cents.
Menziesia, a New Stock-Poisoning Plant of the Northwestern States. (Bureau of Plant Industry Circular.) Price, 5 cents.
The Loco-Weed Disease of the Plains. (Bureau of Animal Industry Bulletin 112.) Price, 35 cents.
The Stock-Poisoning Plants of Montana. (Division of Botany Bulletin 26.) Price, 25 cents.

ADDITIONAL COPIES

OF THIS PUBLICATION MAY BE PROCURED FROM
THE SUPERINTENDENT OF DOCUMENTS
GOVERNMENT PRINTING OFFICE
WASHINGTON, D. C.

AT

5 CENTS PER COPY